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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/608,926  | 06/27/2003  | Ian Stuart Robinson  | NG(ST)-6402         | 7014             |
| 26294   | 7590        | 12/27/2005           | EXAMINER            |                  |
| TAROLLI, SUNDHEIM, COVELL & TUMMINO L.L.P.<br>526 SUPERIOR AVENUE, SUITE 1111<br>CLEVEVLAND, OH 44114 |             |                      |                     | FILE, ERIN M     |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2634                |                  |

DATE MAILED: 12/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| <i>Office Action Summary</i> | Application No.<br>10/608,926 | Applicant(s)<br>ROBINSON ET AL. |
|------------------------------|-------------------------------|---------------------------------|
| Examiner<br>Erin M. File     | Art Unit<br>2634              |                                 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### **Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 27 October 2005.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-30 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) 14-19 and 21-26 is/are allowed.

6)  Claim(s) 1-4,6,11,20,27,29 and 30 is/are rejected.

7)  Claim(s) 5,7-10,12,13 and 28 is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 27 June 2003 is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/14/2005.

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_ .  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_ .

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 6, 11, 20, 27, 29 and 30 rejected under 35 U.S.C. 103(a) as being unpatentable over Viswanathan.

**Claims 1, 20, 27,** Viswanathan discloses providing a plurality of delta sigma modulated frequency patterns based stored in memory (fig. 8, 201, 202, 203, 204), a digital-to-analog converter (fig. 6, 120) that receives a delta-sigma modulated signal associated with the selected one of the plurality of frequency patterns and converts the delta-sigma modulated signal to a corresponding analog signal. Viswanathan discloses the modulation and then selection, as opposed to the instant application which claims selection and then modulation, however, because the output will be the same, it would be obvious to one skilled in the art to make this modification because it would require significantly fewer calculations.

**Claims 2, 30,** Viswanathan discloses the memory providing the selected one of the plurality of frequency patterns in response to the frequency selection input (fig. 8, 202).

**Claim 3,** Viswanathan discloses frequency patterns further comprising delta-sigma modulated patterns associated with the frequencies represented by the plurality of frequency patterns (fig. 8, 201).

**Claim 4,** Viswanathan discloses selecting one of the plurality of patterns from the modulated frequency from the memory device for a desired frequency based on the selection input (fig. 8, 204).

**Claim 6,** a delta-sigma modulator coupled to provide the delta-sigma modulated signal to the digital-to-analog converter based on associated processing of the selected one of the frequency patterns.

**Claims 11, 30,** Viswanathan teaches a one-bit digital-to-analog converter (fig. 3, 71).

**Claim 29,** Viswanathan teaches filtering the analog signal to provide a filtered signal in which noise associated with delta-sigma modulation is mitigated (fig. 3, 73 ).

***Allowable Subject Matter***

3. Claims 14-19 and 21-26 are allowed. The limitation of the selection a frequency pattern for delta sigma modulation and then analog to digital to analog conversion where the selection of frequency patterns is determined by a frequency hopping sequence is not found in the prior art of record.
  
4. Claims 5, 7-10, 12, 13 and 28 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin M. File whose telephone number is (571)272-6040. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571)272-3056. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erin M. File



12/20/2005



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